

INTRODUCTION

BACKGROUND

“Healthy state and local economies and a healthy Chesapeake Bay are integrally related; balanced economic development and water quality protection are not mutually exclusive. . . .” So begins the Chesapeake Bay Preservation Act (Chapter 21 of Title 10.1 of the Code of Virginia), which was enacted in 1988 in order to establish a cooperative state-local program to protect water quality in the Chesapeake Bay and its tributaries. With a drainage area of 64,000 square miles, the Chesapeake Bay is the largest estuary in the United States. It holds more than 18 trillion gallons of water and has a drainage area that encompasses portions of six states (Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia) and all of the District of Columbia. More than 15 million people reside within the Bay’s watershed. According to the Chesapeake Bay Program’s Web site, the population in the Bay’s watershed region is expected to grow to 18 million by the year 2020.

The continued population growth in the watershed and the related use of the watershed’s land for agricultural, commercial, residential, and industrial purposes has resulted in the degradation of the water quality and habitats provided by the Bay and its tributaries. In 1983, Maryland, Virginia, Pennsylvania, the District of Columbia, the Environmental Protection Agency, and the Chesapeake Bay Commission established a broad framework for the restoration of these resources through the first Chesapeake Bay Agreement, which established the Chesapeake Bay Program. This agreement was subsequently revised in 1987 to establish goals and priority commitments in the areas of: Living Resources; Water Quality; Population Growth and Development; Public Information; Education and Participation; Public Access; and Governance. Virginia’s enactment of the Chesapeake Bay Preservation Act was a direct response to many of the commitments made in this Agreement and was established in order to ensure that continued growth and economic development in the area subject to the Act would occur in a manner that would serve to protect the Bay and its tributaries from degradation.

The 1987 Chesapeake Bay Agreement was again updated through the adoption of the Chesapeake 2000 Agreement, and a number of Bay Program initiatives are under way to implement the commitments made in this Agreement. Among the many initiatives that are being pursued is the effort to develop “Tributary Strategies” in each of the Bay’s major watersheds to identify the maximum pollutant loads that can be accommodated by each tributary consistent with the goal of restoring living resource habitats and to achieve reductions in pollutant loadings to attain these maximum pollutant loads. This effort is likely to produce recommendations for substantial and costly measures to reduce pollutant loadings from a wide range of sources, including agricultural runoff, urban stormwater runoff, and sewage treatment plant discharges; it can be anticipated that this effort will have considerable implications for Fairfax County, particularly regarding stormwater management measures and sewage treatment plant discharge levels. While these efforts are intended to be voluntary, there is considerable urgency in their development, implementation, and success. Because the Chesapeake Bay and many of its tidal tributaries are considered to be “impaired” under the Clean Water Act, regulatory approaches to pollutant reduction will be pursued if the voluntary Tributary Strategies effort does not succeed;

these regulatory approaches, under the “Total Maximum Daily Load (TMDL)” requirements of the Clean Water Act, are due to be put in place by 2011 if water quality goals are not attained by 2010.

While Fairfax County is only a small part of the Chesapeake Bay Watershed, the County has a long and continuing commitment to the protection and restoration of its water resources and to regional efforts to restore both the Potomac River and Chesapeake Bay. In 1997, the County’s efforts were recognized by the Chesapeake Bay Program’s Local Government Advisory Committee, which designated the County as a “Gold” Chesapeake Bay Partner Community. The County was recertified as a Gold Partner Community in 2003. The County has undertaken numerous efforts in support of the Bay Program (many of which are described in this report) and will continue to do so in the future; indeed, it is anticipated that there will be continued, if not enhanced, expectations for local water quality improvement efforts in light of the Tributary Strategy and TMDL programs. While the broad scope of efforts to meet Tributary Strategy and TMDL goals falls beyond the scope of this document, this Comprehensive Plan Supplement serves to support this broader effort.

PURPOSE AND INTENT

The Chesapeake Bay Preservation Act required local governments in the “Tidewater” area of the State (including Fairfax County) to designate Chesapeake Bay Preservation Areas and incorporate water quality protection measures into their zoning ordinances, subdivision ordinances, and comprehensive plans. The Act also established both the Chesapeake Bay Local Assistance Board (CBLAB) and the Chesapeake Bay Local Assistance Department (CBLAD) to develop criteria to implement the Act and to administer the program. CBLAD has since been merged into the Department of Conservation and Recreation (DCR) and has been renamed as the DCR Division of Chesapeake Bay Local Assistance. In 1990, CBLAB adopted the Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20-10 et seq., hereinafter referred to as “the Regulations”); these Regulations specified criteria for establishing Chesapeake Bay Preservation Areas as well as performance requirements applicable within these areas. The Regulations also established criteria for the incorporation of water quality protection measures into local comprehensive plans. Significant revisions to the Regulations were adopted by CBLAB in December, 2001.

On March 22, 1993, pursuant to the requirements of the Regulations, the Fairfax County Board of Supervisors adopted Chapter 118 of the Fairfax County Code (the County’s Chesapeake Bay Preservation Ordinance, or “the Ordinance”). The Ordinance, which is discussed later in this document, established Chesapeake Bay Preservation Areas in Fairfax County, identified allowed uses in these areas, and established performance requirements for new development, redevelopment, on-site sewage disposal facilities, and agricultural uses in these areas. Amendments to the Zoning Ordinance (Chapter 112), Subdivision Ordinance (Chapter 101), Erosion and Sedimentation Control Ordinance (Chapter 104), and Public Facilities Manual followed shortly thereafter. Pursuant to the 2001 revisions to the Regulations, the County’s Ordinance was revised significantly in 2003. Again, this is discussed in more detail later in this document.

The actions noted above have satisfied many of the mandates of the Regulations. However, they do not satisfy Comprehensive Plan requirements. On March 19, 2001, CBLAB completed its review of Fairfax County's Comprehensive Plan and found the County's Comprehensive Plan to be consistent with the Act and Regulations subject to the condition that the County undertake and complete recommendations addressing the following:

- The incorporation of the adopted map of Chesapeake Bay Preservation Areas into the Comprehensive Plan;
- The identification of conditions along the County's tidal shoreline as they relate to erosion;
- The development of policies and implementation strategies to assist the County's Wetlands Board in its review of shoreline erosion control proposals;
- The identification of waterfront access points;
- The development of policies to establish criteria for locating boating access sites;
- The identification of water pollution sources;
- The development of policies, where appropriate, to address recommendations from the Infill and Residential Development Study that affect water quality; and
- The development of policies to address redevelopment and water quality improvement.

Consistent with the recommendations noted above, this Comprehensive Plan supplement:

- Incorporates a map of the County's Chesapeake Bay Preservation Areas as part of the Comprehensive Plan;
- Presents the results of an original aerial photo-based shoreline erosion control inventory identifying areas along the tidal shoreline that are experiencing either erosion or accretion and identifying existing erosion control structures;
- Presents information regarding waterfront access sites (including boating access sites), from both existing published guidance and from an original aerial photo-based inventory of the County's tidal shoreline;
- Presents a discussion identifying water pollution sources in Fairfax County;
- References recently-adopted Plan guidance addressing issues related to watershed management planning, water quality improvement during redevelopment, shoreline erosion, and shoreline access; and
- Presents recommendations for actions to address water quality issues associated with water pollution sources, infill development, redevelopment, shoreline erosion, and shoreline access.

The purpose and intent of this Comprehensive Plan supplement and related Comprehensive Plan Objectives and Policies is to continue and enhance the County's commitment to the Chesapeake Bay Program through the satisfaction of all Comprehensive Plan requirements of the Chesapeake Bay Preservation Act and the Chesapeake Bay Preservation Area Designation and Management Regulations. This document is also intended to support the recently-adopted Board of Supervisors' Environmental Excellence 20-year Vision Plan (also known as the "Environmental Agenda"), to further the broader purpose of the Environment section of the County's Policy Plan to "provide guidance for achieving a balance between the need to protect the environment while

planning for the orderly development and redevelopment of the County,” and to support the Board of Supervisors’ Environmental Protection and Open Space Goals and related Objective and Policies as set forth in the County’s Policy Plan. In order to accomplish this, the scope of this document is broader than that which would be required to satisfy the above-mentioned condition of consistency; rather, critical water resource issues are identified and addressed in a more comprehensive manner (with a focus on land use-related issues), and a broad range of actions needed to continue and enhance the County’s commitment to its water resources is identified (again, with a general focus on land use). However, this document is not intended to provide a comprehensive assessment of all issues associated with the Environment section of the Policy Plan; rather, the scope is limited to issues associated with the relationship of development and redevelopment to the quality of the Chesapeake Bay, Potomac River, and streams and other bodies of water in Fairfax County. Further, the recommendations presented within this document do not propose any new objectives or policies; rather, the focus is on existing policies and suggested implementation. A series of new policy statements has been adopted within the Policy Plan in conjunction with this effort, and this report should be viewed as a supplement to this recent Policy Plan amendment.

In order to provide a more comprehensive focus on key water resource issues facing the County, there is a need to understand the demographic, land use planning, regulatory, and environmental contexts within which these issues must be considered. As such, the remainder of this introductory section provides a brief overview of demographic and key land use planning contexts, followed by a brief history of stormwater and water quality management in Fairfax County and a summary of the County’s Chesapeake Bay Preservation Ordinance. The ensuing section of this report focuses on a broad range of water quality factors, including topography, geology, soils, wetlands, forest cover, and water usage. Included within this section is a map displaying Chesapeake Bay Preservation Areas. Per the Comprehensive Plan condition imposed by the Chesapeake Bay Local Assistance Board (CBLAB), this map is incorporated, by reference, into the County’s Policy Plan.

After providing an overview of water quality factors, the document identifies key point and nonpoint sources of water pollution and provides a brief summary of current water quality conditions. The document then focuses on key considerations along the County’s tidal shorelines, with a focus on shoreline erosion and access considerations. The document then provides an overview of the County’s water quality policies, regulations, and initiatives. Included in this section is a discussion of the recently adopted Board of Supervisors’ Environmental Excellence 20-year Vision Plan. The document concludes with a series of proposed actions to address the water quality factors and shoreline conditions identified earlier in the report and to support related policies that have been adopted by the Board of Supervisors.

This document has been prepared as a supplement to the County’s Policy Plan and its goals, objectives, and policies with a more detailed consideration of water quality issues and recommended actions to address these issues. The document should be recognized as reflecting the conditions that were present during a snapshot in time during the year 2004; unlike the Policy Plan itself, it is anticipated that this document will become dated as conditions and efforts change and evolve. However, it is hoped that this Plan supplement will serve to provide a focus on the broad range of water resource issues facing the County at this time.

THE DEMOGRAPHIC AND LAND USE PLANNING CONTEXT

Fairfax County is a 395 square mile jurisdiction (including the Towns of Clifton, Herndon, and Vienna) located in the Washington, D.C. metropolitan area (Figure 1). While the County was not formally created until 1742, English settlement began in the early 1600s. During the 1700s, agricultural uses had spread throughout the County. Large tobacco plantations dominated the eastern Coastal Plain area, smaller scale farms growing both tobacco and wheat were common in the central portion of the County, and self-sufficient farming was the norm in the western third of the County. By the middle of the 19th century, smaller farm units replaced many of the large tobacco plantations and the raising of agricultural commodities such as corn, fruit, and livestock expanded throughout the County. The late 19th century saw a shift in the agricultural focus due to the increasingly dominant presence of the national capital and the creation of a regional market. The desire for dairy products was especially great and gave rise to commercial dairies, especially in the western sections of the County. The demand for livestock, poultry, and fruit was also high. This agricultural mix was dominant in the County until World War II.

In the latter half of the 20th century, the County's population grew rapidly, first as a bedroom community for Washington, D.C. and more recently as an employment destination rivaling many of the largest cities in the country. As late as 1930, there were only about 25,000 people living in Fairfax County. Population grew to approximately 98,600 in 1950, and by 1970, more than 450,000 people called Fairfax County home. Since then, the population of the County has more than doubled, and the County is now the most populous jurisdiction in the Washington metropolitan area. Fairfax County now has more residents than seven states. If Fairfax County were a city, it would rank 11th in the country in population. The number of housing units in the County has also increased substantially, and projections call for the addition of over 190,000 more people and over 70,000 new housing units in the County between 2005 and 2025 (Table 1). A variety of unit types characterize the County's housing stock; in 2002, just under half of the total number of residences were single family detached units, with townhouses and multifamily residential dwellings constituting 24.4% and 25.9% of the total number of units, respectively.

Employment in the County has increased substantially in the latter half of the 20th century as well (Table 2). More than half of the County's employed residents now work in the County. The County's large employment base is white collar in nature; the County is a base for numerous federal contractors, technology employers, venture capital firms, and telecommunications companies and is home to seven Fortune 500 company headquarters. The general increase in employment within Fairfax County is expected to continue in the future. However, heavy industrial activity involving substantial pipe discharges into County waterways is generally absent and is not anticipated to become significant in the future.

The increases in population and employment in Fairfax County have had a profound influence on land use in the County, and continued population and employment levels will influence the type, intensity, and character of land use in the future. While the substantial growth of the last half of the 20th century was generally accommodated by an abundant supply of vacant land, there is no longer a substantial amount of vacant land left within the County. As can be seen in Table 3, only 11.1% of the County's zoned land (excluding public street rights of way) remained vacant

Figure 1
Location Map
Fairfax County,
Virginia
and Vicinity

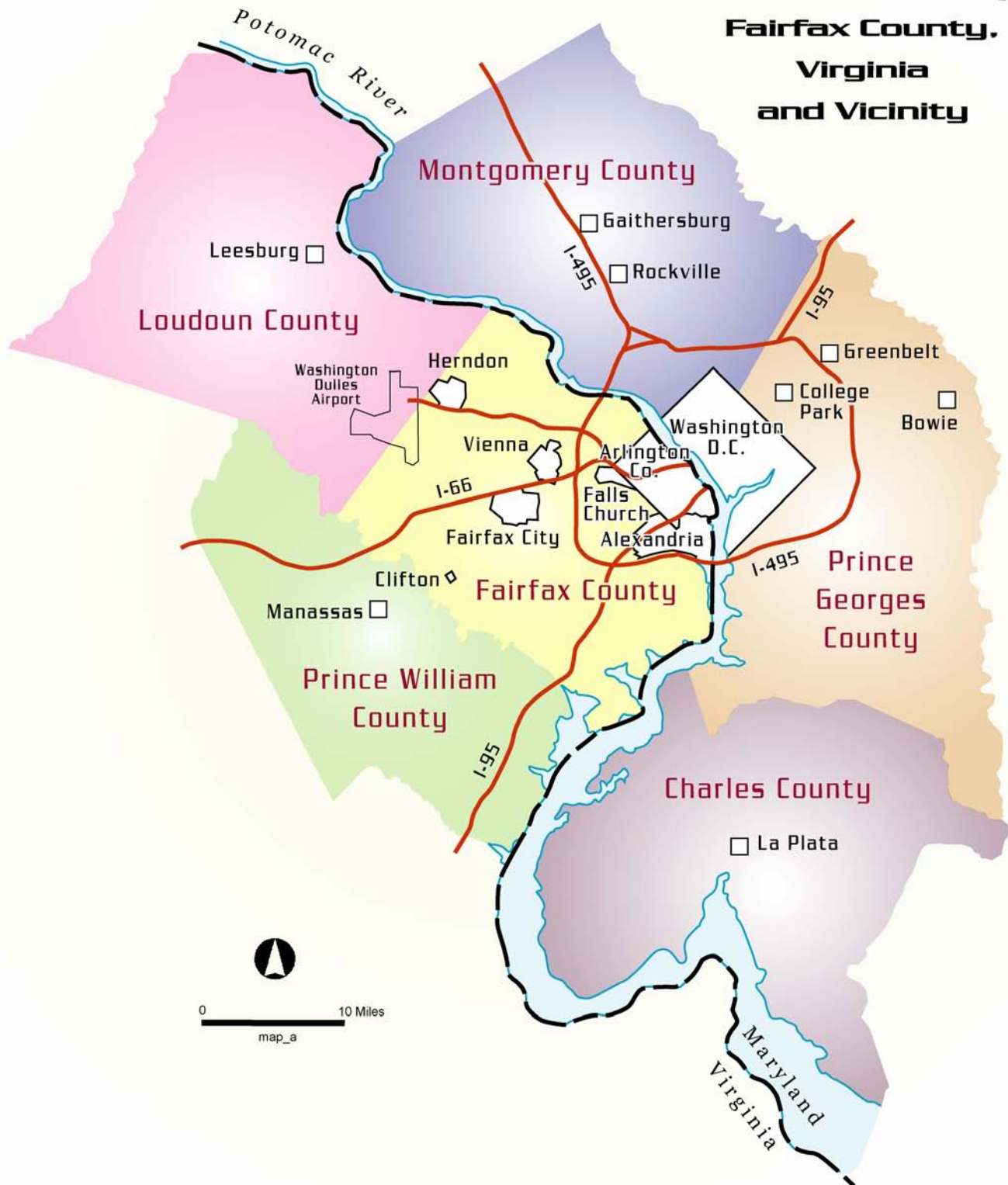


TABLE 1 Population and Housing Data and Projections—Fairfax County		
<u>Year</u>	<u>Population</u>	<u>Housing Units</u>
1950	98,600	27,000
1960	248,900	69,200
1970	454,300	130,800
1980	596,900	215,600
1985	668,300	247,800
1990	818,600	302,500
1995	879,400	328,200
2000	969,700	359,000
2005	<i>1,042,800</i>	<i>385,400</i>
2010	<i>1,147,600</i>	<i>425,200</i>
2015	<i>1,212,800</i>	<i>448,400</i>
2020	<i>1,230,400</i>	<i>454,600</i>
2025	<i>1,236,000</i>	<i>456,600</i>

Notes: All numbers are rounded to the nearest hundred.
Projections are italicized.

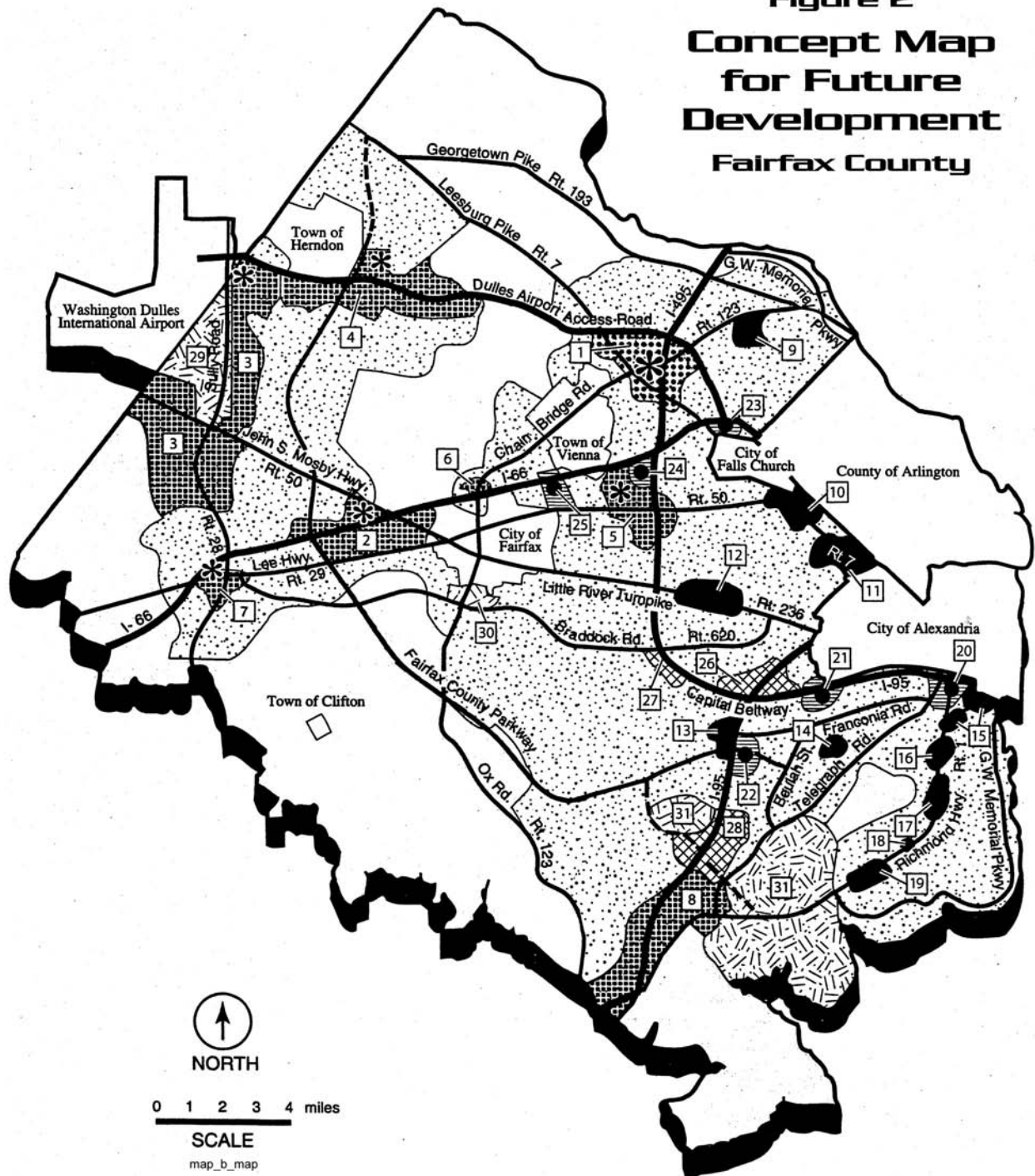
Sources: Population figures for 1950 and 1960 were taken from Fairfax County Profile, Fairfax County Office of Research and Statistics, Research Branch, February, 1975 (1950 and 1960 data). All other data were taken from Demographic Reports, 2003, Fairfax County Department of Systems Management for Human Services.

as of 2003 (note: natural areas such as parks are not considered to be vacant), and much of this land may contain constraints to development.

Fairfax County's first attempt at regulating development occurred with the 1929 Subdivision Ordinance, which required subdivision plats to be approved by the "County Engineer" prior to recordation and that streets and alleys be a minimum width of 50 feet and 15 feet, respectively. It also required that names of subdivisions, streets, and alleys not be duplicated and that all proposed streets and alleys connect with streets and alleys in adjacent subdivisions.

A Zoning Ordinance was adopted in 1941; this document defined broad categories of land use such as "rural-residential" and "urban-commercial." The County's first Building Code was adopted in 1951. The County's first Comprehensive Plan was adopted in 1958. In 1975, following a multi-year planning effort known as the "Planning Land Use System," or "PLUS," a revised Comprehensive Plan was adopted. In 1988, the "Planning Horizons" process was initiated, resulting in the adoption of the County's Policy Plan (containing countywide goals, objectives, and policies related to specific functional elements) in 1990 and the adoption of four amended Area Plans (containing more detailed land use-related recommendations for specific Planning Districts and Community Planning Sectors) in 1991. These planning documents have

Figure 2
Concept Map
for Future
Development
Fairfax County



Legend

(For Figure 2)

LOCATIONS OF MIXED-USE CENTERS

Urban Center

1. Tysons Corner Urban Center

Suburban Centers

2. Fairfax Center
3. Dulles (Route 28 Corridor)
4. Reston-Herndon
5. Merrifield
6. Flint Hill
7. Centreville
8. Lorton-South Route 1

Community Business Centers

9. McLean
10. Seven Corners
11. Baileys Crossroads
12. Annandale
13. Springfield (West)
14. Kingstowne
15. North Gateway and Penn Daw
16. Beacon/Groveton
17. Hybla Valley/Gum Springs
18. South County Center
19. Woodlawn

Transit Station Areas

20. Huntington Metro Station
21. Van Dorn Metro Station
22. Franconia/Springfield Metro Station
23. West Falls Church Metro Station
24. Dunn Loring Metro Station
25. Vienna Metro Station

LOCATIONS OF LARGE INSTITUTIONAL AND INDUSTRIAL AREAS

Industrial Areas

26. Beltway South
27. Ravensworth
28. I-95 Corridor

Large Institutional Land Areas

29. Washington Dulles International Airport
30. George Mason University
31. Fort Belvoir (Main Post and Engineer Proving Ground)



Suburban Neighborhoods
(Residential density ranges defined in Area Plans; 0.15-0.25 FAR* for neighborhood-serving non-residential use)



Low Density Residential Areas
(Residential density of 0.1 to 0.5 du/ac **, specific density ranges in Area Plan; Non-residential use intensity 0.05 to 0.1 FAR)



Tysons Corner Urban Center Core (1.0-1.65 FAR; 35-60 du/ac)
Non-Core (0.25-1.0 FAR; 8-45 du/ac)



Suburban Centers Core (0.3-0.8 FAR; 15-35 du/ac)
Non-Core (0.15-0.30 FAR; 5-25 du/ac)



Community Business Centers
(0.20-0.50 FAR; 5-25 du/ac; if a core is designated, intensities of up to 0.70 FAR may be allowed)



Transit Station Areas
(0.30-1.00 FAR; 8-45 du/ac)



Industrial Areas
(0.25-0.50 FAR for Industrial Uses)



Large Institutional Land Areas

* FAR - floor area ratio
** du/ac - dwelling units per acre

map_b_legend

been amended many times since the Planning Horizons process to ensure that the County's Plan responds to the changing needs of its population.

TABLE 2 Nonagricultural Employment in Fairfax County 1950-2000	
<u>Year</u>	<u>Total Employment</u>
1950	19,900
1960	39,200
1970	96,700
1980	192,400
1985	268,400
1990	371,700
1995	410,100
2000	518,800

Notes: Number of people employed in Fairfax County, regardless of place of residence.

Data are as of March of each year.

All numbers are rounded to the nearest hundred.

Source: Virginia Employment Commission data as reported in several County documents.

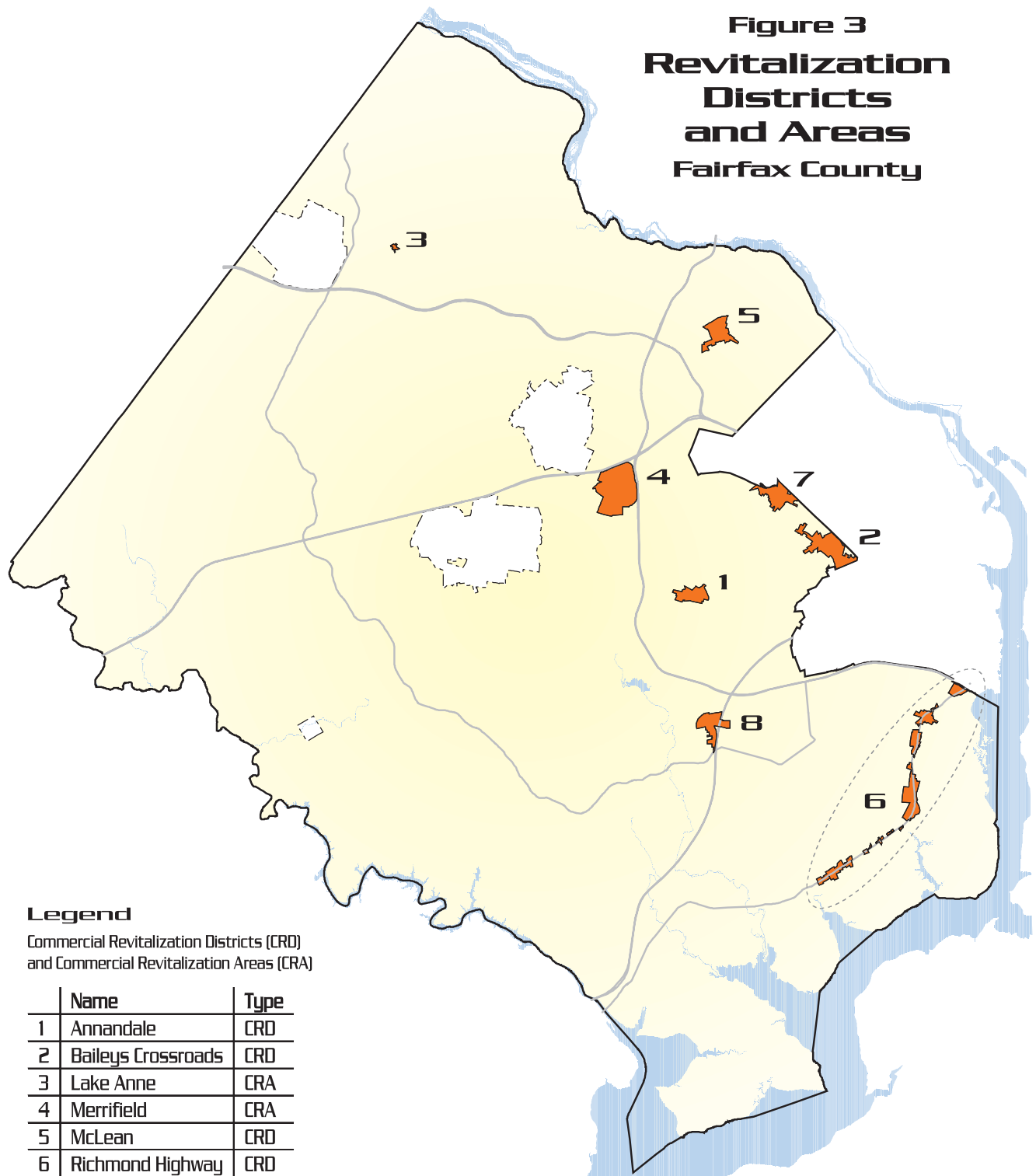
TABLE 3 Vacant Land in Fairfax County	
<u>Year</u>	<u>Percent Vacant</u>
1973	Approx. 38%
1980	32.2%
1985	29.2%
1990	19.5%
1995	16.1%
2003	11.1%

Note: Figures represent the percentage of zoned land that is vacant. "Underutilized" parcels are not included. Natural areas such as parks are not considered to be vacant.

Source: Various editions of Demographic Reports and Standard Reports, Fairfax County Department of Systems Management for Human Services (preceded by the Fairfax County Office of Research and Statistics)

The Area Plan volumes of the County's Comprehensive Plan, in conjunction with the adopted Plan map, serve to implement a "Concept for Future Development and Land Classification System," which was introduced in 1990 (Figure 2). This concept stresses the concentration of new employment in mixed use, pedestrian-oriented, high density core areas and the protection and enhancement of stable residential neighborhoods. The Concept for Future Development has been incorporated into each adopted Area Plan to provide a context, framework, and broader vision for the land use recommendations in the Comprehensive Plan.

**Figure 3
Revitalization
Districts
and Areas
Fairfax County**



Legend

Commercial Revitalization Districts (CRD)
and Commercial Revitalization Areas (CRA)

	Name	Type
1	Annandale	CRD
2	Baileys Crossroads	CRD
3	Lake Anne	CRA
4	Merrifield	CRA
5	McLean	CRD
6	Richmond Highway	CRD
7	Seven Corners	CRD
8	Springfield	CRD

Source: Planning Division (PD), Department of Planning & Zoning (DPZ).
Information is not provided for the cities of Alexandria, Fairfax, and Falls
Church, or for the towns of Clifton, Herndon, and Vienna. Prepared by
DPZ - PD using Fairfax County GIS.



With the expansion of development throughout most of the County, the character of development in the County has changed significantly. Where new development once tended to occur on large tracts of land that may have been relatively isolated, there are few large tracts of vacant or underdeveloped land remaining in the County, and much of the development that is now occurring is of an infill or redevelopment character. Such development has generated a suite of issues and concerns that are quite different from issues associated with the type of development that was once more common in the County. In addition, the County's developed areas have aged, and there has been the recognition of a need to revitalize many of the County's older commercial areas in order to sustain the economic vitality and quality of life of these areas. In recognition of these issues, the County has recently pursued major planning and zoning initiatives to address infill development and revitalization issues.

In 1998, the Fairfax County Board of Supervisors designated five Commercial Revitalization Districts (CRDs) and two Commercial Revitalization Areas (CRAs) (Figure 3). Specific regulations and administrative procedures were adopted for the Revitalization Districts in order to provide more flexibility in zoning requirements, in order to facilitate redevelopment projects by improving review processes, and in order to improve the appearance and pedestrian facilities in these areas. Separate provisions were established within the Zoning Ordinance for each of the five CRDs. In addition, major planning studies were initiated and completed for each of the Revitalization Areas and Districts in order to ensure that revitalization efforts in each of these areas will reflect community goals. As will be discussed later in this report, redevelopment of older developed portions of the County presents both challenges and opportunities for water quality improvement.

In January, 2000, County staff published the "Infill and Residential Development Study," which outlined a number of recommended actions related to the County's planning and zoning processes and development requirements. The actions were intended to address concerns in several major areas of emphasis: site design and neighborhood compatibility; traffic and transportation; tree preservation; and stormwater management and erosion and sediment control. More information about these recommendations is presented later in this report.

A BRIEF HISTORY OF STORMWATER AND WATER QUALITY MANAGEMENT IN FAIRFAX COUNTY

GENERAL HISTORY¹

The concepts of stormwater management and water quality controls have changed dramatically over the last few decades. Throughout most of this period, stormwater control was directed at controlling water runoff from storm events and preventing flooding. More recently, it has come

¹ Much of the discussion in this section is excerpted directly from an appendix in a County document entitled "The Role of Regional Ponds in Fairfax County's Watershed Management" (Environmental Coordinating Committee, Regional Pond Subcommittee, March 3, 2003). Much of that appendix, in turn, was based on the work of Jack White, a former employee of the Fairfax County Department of Public Works and Environmental Services and its predecessor agencies. County staff is grateful for Mr. White's efforts and acknowledges his work as the source of much of this overview.

to include the reduction of pollutants from stormwater runoff and the protection of streams and rivers from bank erosion, heavy sedimentation, and loss of biological diversity and habitat.

Until the middle of the 20th century, development in Fairfax County was largely unregulated. The primary goals of stormwater controls were to prevent catastrophic flooding and to collect and remove runoff from developed properties. This approach continued through the 1950s, when several hundred houses were allowed to be constructed in floodplains and streams were placed in concrete channels in order to prevent the flooding of these homes.

During the period from 1958 through 1975, 100-year floodplains were delineated and adopted for all streams having a drainage area greater than one square mile. In the 1960s, provisions were incorporated into the County's Building Code that limited the development potential of these areas. Also during the 1960s, design and construction of a series of impoundments was initiated in the Pohick Creek Watershed, with funding provided under Public Law 566, in order to control flooding and sedimentation in advance of anticipated development in this watershed.

In 1964, the County published its first set of formal guidelines for the preparation of construction plans. This document, titled "Policies and Guidelines for the Preparation of Subdivision Plans and Site Development Plans," was the forerunner of the current Public Facilities Manual (PFM). The early guidelines for stormwater management in this document called for "adequate drainage," which was generally attained through the conveyance of runoff through curb-and-gutter and concrete pipe or channel facilities. In 1964, the County began collecting developer contributions (pro rata share) for construction of major drainage system improvements downstream of development projects.

In 1967, the County adopted an erosion and sediment control ordinance, five years prior to the adoption of a state erosion and sediment control law.

In 1972, the County began to require all new development to manage stormwater runoff by reducing peak flow rates of the two-year and ten-year design storms to predevelopment peak flow rates. This requirement, along with strict enforcement of the erosion and sediment control law, was intended to reduce severe erosion of downstream channels and prevent the transport of large quantities of sediment through the County's waterways.

In 1973, the County's Board of Supervisors established a Tree Planting and Preservation Ordinance, which established: the Office of the County Arborist (now known as the Urban Forestry Management Branch of the Department of Public Works and Environmental Services); the Fairfax County Tree Commission; and requirements addressing the identification and protection of tree preservation areas during land development.

In 1973, the County expanded its pro rata share program. The purpose of this program was to require land developers to pay their share of the cost of providing off-site drainage improvements that were made necessary, at least in part, by their development projects. In the late 1970s, the County completed a countywide Master Drainage Plan, and the pro rata share program was revised to include some of these projects. This plan identified existing storm drainage

deficiencies along the major streams and tributaries in the County and identified improvements anticipated to be needed as a result of future land development.

In 1975, The Environmental Quality Corridor, or EQC, policy was incorporated into the Comprehensive Plan. The EQC system is an open space system designed to link and preserve natural resource areas and provide passive recreation. The EQC policy is described more completely later in this document.

In 1978, the Upper Occoquan Sewage Authority (UOSA) Water Reclamation Facility, which was constructed in the watershed of one of the County's primary sources of drinking water (the Occoquan Reservoir), was placed into service and became the nation's largest and most successful project for the indirect reuse of reclaimed water to supplement a public water supply. This facility was established pursuant to the Virginia State Water Control Board's 1971 Occoquan Policy, which called for the phasing out of small, outdated sewage treatment facilities in the Occoquan Watershed in favor of no more than three state-of-the-art advanced water reclamation plants.

Fairfax County addressed land use-related components of the effort to protect the Occoquan Reservoir from degradation in the early 1980s. A water quality best management practice (BMP) requirement for Fairfax County's portion of the Occoquan Watershed (over 63,000 acres) was incorporated into the Public Facilities Manual (PFM) in 1980 and was formalized through the adoption of a watershed-wide zoning overlay district (the Water Supply Protection Overlay District) in 1982. Also in 1982, the Board of Supervisors rezoned nearly 41,000 acres of land in the watershed to the R-C (Residential-Conservation) District, allowing no more than one dwelling unit per five acres of land in the affected area. The Board's 1982 actions were a landmark in land use and water quality control in the County and have persisted to this day.

In the mid-1980s, the County developed a regional stormwater management plan for approximately 100 square miles of rapidly developing portions of the County. The regional ponds recommended through this plan would be designed to control larger watersheds (100 to 300 acres of drainage), thereby obviating the need for on-site facilities in these watersheds and reducing County maintenance burdens. In addition to water quantity control functions, these facilities would be designed to serve as water quality BMPs. In 1989, as part of its approval of a report of a task force that was formed to evaluate safety and liability concerns associated with stormwater detention ponds, the County's Board of Supervisors approved the Regional Stormwater Management Plan, which originally identified 134 sites for the construction of regional stormwater management BMP ponds.

In 1990, Fairfax County became the first locality in Virginia to adopt tree cover requirements based on legislation passed by the Virginia General Assembly in 1989. This legislation allows localities to establish specific levels of tree cover on development sites and to require site plans for proposed land development to demonstrate how required tree cover levels will be met after a ten-year post development time period. The legislation allows the ten-year tree cover requirements to be met through the planting of new trees or the preservation of existing trees and forest stands. The 1990 tree cover legislation provided Fairfax County with an opportunity to update its existing tree preservation and planting ordinance and associated specifications that

were initially established in 1973; specifically, zoning district-specific tree cover requirements were established (ranging from 10% in commercial, industrial, and high density residential districts to 20% in lower density residential districts, based on a ten-year growth assumption). Incentives were provided to encourage developers to meet these requirements through tree preservation efforts rather than through tree planting.

In 1993, pursuant to the aforementioned Chesapeake Bay Preservation Act and Chesapeake Bay Preservation Area Designation and Management Regulations, the County adopted the Chesapeake Bay Preservation Ordinance (Chapter 118 of the Fairfax County Code). The Ordinance established Resource Protection Areas (RPAs) along the tidal shoreline, along “tributary” streams as defined by the Regulations, and within 100-year floodplains of streams collecting drainage from areas equal to or greater than 360 acres. The Ordinance also established Resource Management Areas (RMAs) in all areas outside of RPAs; one effect of this designation was the establishment of a countywide BMP requirement. The Ordinance, which was revised significantly in 2003, is discussed in more detail below.

As part of the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act, in 1991 and 1992, Fairfax County submitted its Part 1 and Part 2 applications for a municipal permit from the Virginia Department of Environmental Quality (VDEQ) to discharge stormwater into State waters. To obtain this permit, Fairfax County was required to demonstrate that it had an effective stormwater management and monitoring program. In January, 1997, the first Fairfax County Municipal Separate Storm Sewer System (MS4) permit was issued. Monitoring efforts pursuant to MS4 permit conditions are ongoing.

In September, 1998, the County launched a stream protection initiative. The Stream Protection Strategy (SPS) Baseline Study, published in January, 2001, gave a temporal view of the condition of the County’s streams using biological indicators such as fish and aquatic insects to determine the ecological integrity of streams. More information about the results of this study is provided later in this report.

In October, 2000, the Fairfax County Board of Supervisors adopted an amendment to the County’s Policy Plan to establish an explicit objective for the protection and restoration of the ecological integrity of streams. The amendment also added language to the Plan to encourage the use of low impact site design techniques (since revised to reference “better site design” and low impact development techniques).

In October, 2001, the County launched a watershed planning initiative. The intended outcome of this initiative, which will take several years to complete, will be the establishment of watershed management plans for all 30 of the County’s watersheds. More information about this initiative is provided later in this report.

Presently, the County is reevaluating its regional stormwater management policy and is pursuing efforts to better integrate better site design and low impact development practices into its stormwater management program. A March 3, 2003 County staff report entitled “The Role of Regional Ponds in Fairfax County’s Watershed Management” recommended that regional ponds not be considered the preferred stormwater management alternative but that they instead by

viewed as one of many tools that can be considered to address stormwater management needs. The report also contained a comprehensive set of recommendations for improvements to the County's stormwater management efforts, and work is continuing on the development of implementation plans for these recommendations.

In summary, the County's stormwater management policies, practices, and requirements have evolved over time and are continuing to evolve today. Much has been learned about the relationship between impervious cover associated with development and impacts to water resources, and while the County has been a leader in the implementation of water quality controls (most notably in the Occoquan Watershed), much of the development that has occurred in the County has done so without the benefit of adequate stormwater management measures and/or water quality best management practices. Figure 4 displays properties on which stormwater management and/or water quality best management practice facilities are located; while there are over 3,250 such facilities in the County, there are substantial areas of the County within which stormwater and/or BMP controls are not in place.

THE CHESAPEAKE BAY PRESERVATION ORDINANCE

The Chesapeake Bay Preservation Ordinance, Chapter 118 of the Fairfax County Code, was first adopted on March 22, 1993 and became effective on July 1, 1993. The Ordinance has been amended several times since then; the most substantial amendment was adopted on July 7, 2003 to incorporate changes made in December, 2001 to the Chesapeake Bay Preservation Area Designation and Management Regulations. Revised maps of Chesapeake Bay Preservation Areas, applying field determinations of stream perenniality to the identification of Resource Protection Areas (RPAs), were adopted on November 17, 2003.

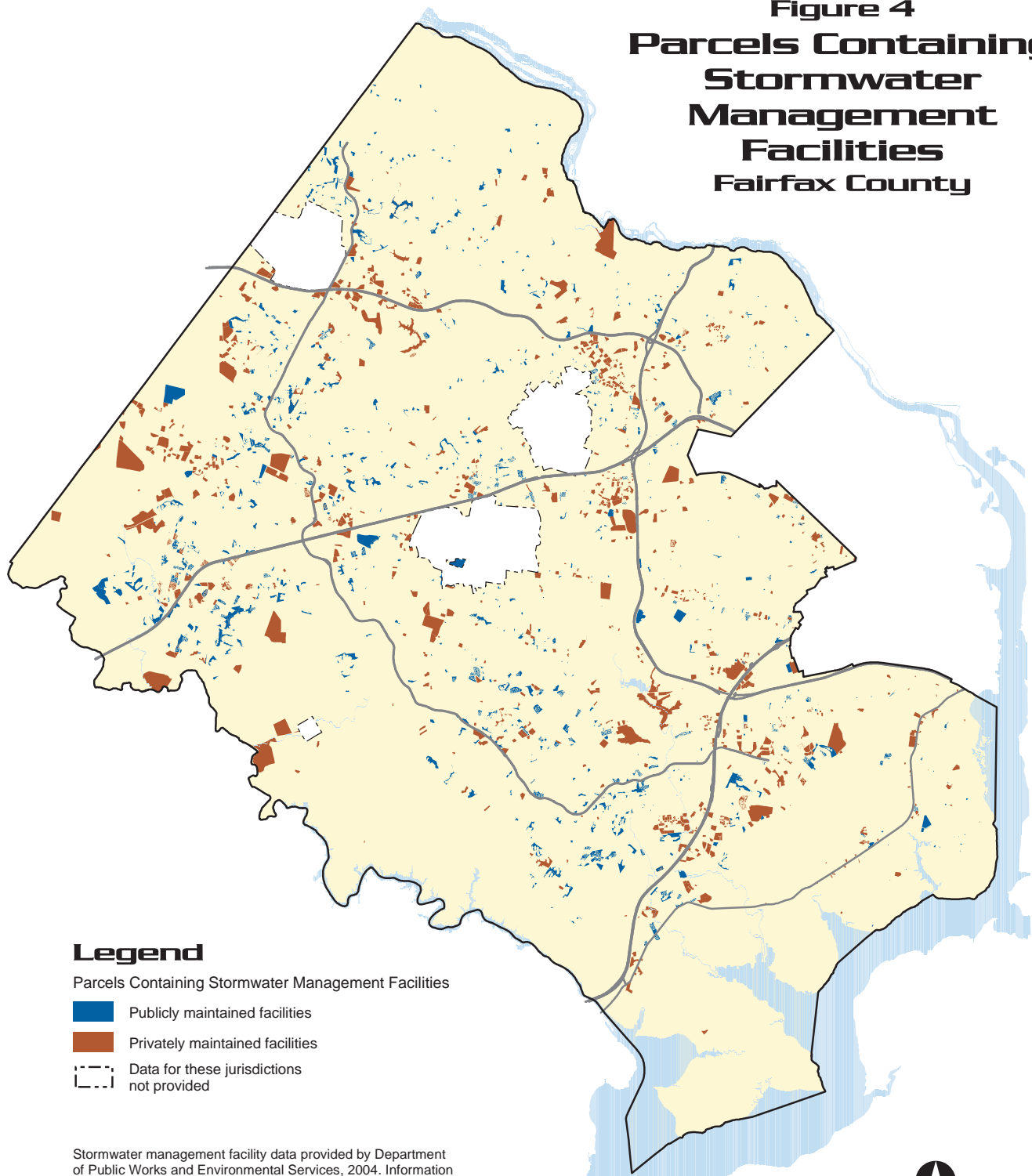
Section 118-1-7 of the County's Chesapeake Bay Preservation Ordinance establishes that RPAs include any land characterized by one or more of the following features:

- A tidal wetland;
- A tidal shore;
- A water body with perennial flow;
- A nontidal wetland connected by surface flow and contiguous to a tidal wetland or water body with perennial flow; and
- A buffer area as follows:
 - Any land within 100 feet of a feature listed above; and
 - Any land within a major floodplain (the 100-year floodplain of any stream collecting drainage from an area equal to or greater than 360 acres).

Resource Management Areas (RMAs) include any area not designated as an RPA.

The Chesapeake Bay Preservation Ordinance contains a provision regarding the possible designation of Intensely Developed Areas (IDAs); however, no IDAs have been designated to date.

Figure 4
Parcels Containing
Stormwater
Management
Facilities
Fairfax County

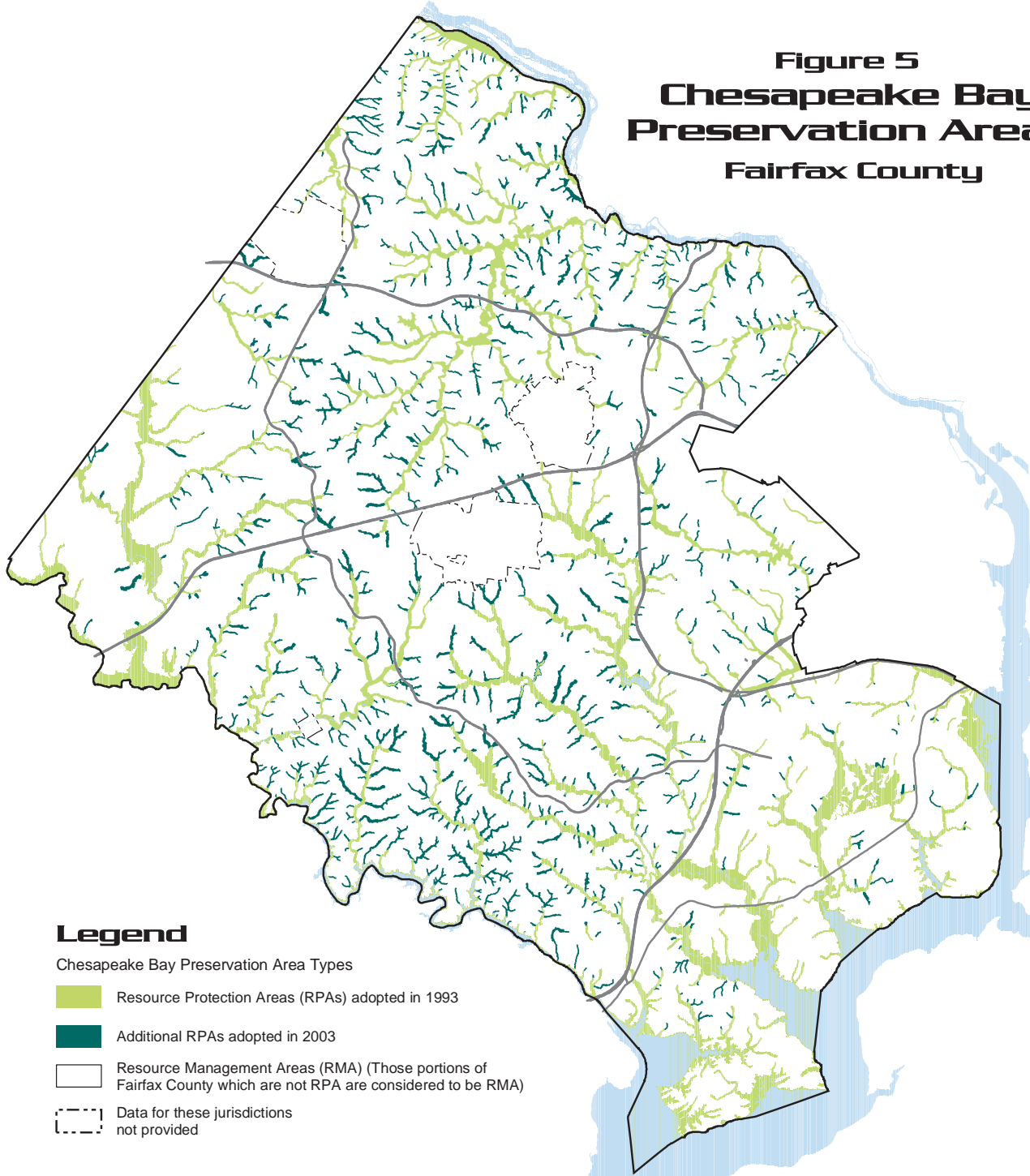


Stormwater management facility data provided by Department of Public Works and Environmental Services, 2004. Information is not provided for the cities of Alexandria, Fairfax, and Falls Church, or for the towns of Clifton, Herndon, and Vienna. Prepared by DPZ - PD using Fairfax County GIS.

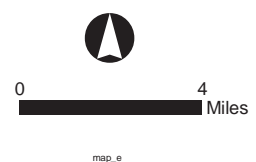


map d

Figure 5
Chesapeake Bay
Preservation Areas
Fairfax County



CBPA data provided by Department of Public Works and Environmental Services, 2003. Intensely Developed Areas (IDAs) have not been designated. Information is not provided for the cities of Alexandria, Fairfax, and Falls Church, or for the towns of Clifton, Herndon, and Vienna. Prepared by DPZ - PD using Fairfax County GIS.



Land disturbing activities are generally prohibited in RPAs, although redevelopment, water-dependent development, certain roads and driveways, and flood control and stormwater management facilities that drain or treat water from multiple development projects or from a significant portion of a watershed are allowed, subject to certain conditions. Within the RPA buffer area, indigenous vegetation may be removed (subject to certain conditions) to provide for reasonable sight lines, access paths, general woodlot management, habitat management, and shoreline erosion control. Agricultural encroachments into the landward portions of the RPA buffer area are also permitted under certain conditions. Some specific activities are exempt from Ordinance requirements pursuant to Virginia's Chesapeake Bay Preservation Area Designation and Management Regulations, while other activities may occur within RPAs through the granting of an exception. Waivers to address the effective loss of a reasonable buildable area and exceptions for minor additions to existing structures are addressed administratively, while other exceptions must be approved by either the County's Board of Supervisors or Exception Review Committee following a public hearing. Water Quality Impact Assessments are required for non-exempt land disturbing activities in RPAs.

The Chesapeake Bay Preservation Ordinance also contains performance criteria that apply within both RPAs and RMAs. Included are criteria requiring: stormwater management best management practices for new development and redevelopment; reserve disposal sites and periodic pump outs for on-site sewage disposal facilities; minimization of land disturbance and impervious cover consistent with the proposed use, development, or redevelopment; preservation of indigenous vegetation to the maximum extent practicable consistent with the proposed use, development, or redevelopment; compliance with the County's Erosion and Sedimentation Control Ordinance (Chapter 104 of the County Code) for any land disturbing activity exceeding an area of 2,500 square feet; evidence of wetlands permits; and soil and water quality conservation assessments for agricultural uses.

A map of the County's Chesapeake Bay Preservation Areas is provided in Figure 5.

TIDAL WETLAND REGULATION

Water quality is dependent on vast and complex ecosystems that function in interrelated ways to enhance water quality. Wetlands serve important water quality functions: they trap nutrients and sediments; they serve as an overflow area for flood waters; and they provide habitat for a diverse array of species. The Commonwealth of Virginia acknowledged the importance of tidal vegetated wetlands in the total scheme of water quality protection when the General Assembly adopted the State's Wetlands Act of 1972. The Act was later expanded to encompass the protection of non-vegetated tidal wetlands in 1974. That legislation seeks to protect tidal wetlands and to curtail the negative impacts of tidal shoreline erosion on tidal wetlands and on water quality. The Wetlands Policy adopted by the General Assembly with the Wetlands Act captures the essence of wetlands protection:

“Therefore, in order to protect the public interest, promote the public health, safety and the economic and general welfare of the Commonwealth, and to protect public and private property, wildlife, marine fisheries and the natural environment, it is declared to be the public policy of this Commonwealth to preserve the wetlands, and

to prevent their despoliation and destruction and to accommodate necessary economic development in a manner consistent with wetlands preservation.”

Fairfax County adopted its Wetlands Zoning Ordinance in 1983. This Ordinance established a Wetlands Board, which was provided with the authority to review specific projects along the County’s tidal shoreline, as stipulated in the Virginia Wetlands Act.

ACQUISITION OF PARK LAND

The Fairfax County Park Authority, whose mission includes setting aside public spaces for protection and enhancement of environmental values, owns more land in the County (over 23,000 acres) than any other single entity. Much of this land is located along the County’s network of streams; approximately 7,000 acres of stream valley land has been acquired by the Park Authority since the early 1950s, and the Authority adopted its first Stream Valley policy in 1973. This policy listed specific stream valleys identified for acquisition through development dedications or other means that would comprise the Stream Valley Park Plan. This Plan formed the basis of the Environmental Quality Corridor System that was incorporated into the County’s Comprehensive Plan in 1975 and that played a major role in shaping development patterns. In 1998, the Stream Valley policy was revised and new guidelines for stream valley acquisition were adopted. These guidelines define stream valleys, their importance in their preservation, and establish that the stream valley park system be confined to major streams with inclusion of lateral tributaries on a discretionary basis. Continuity and public access to the stream valley park network are imperative elements of this policy.

Since its establishment as a multi-jurisdictional park agency in 1959, the Northern Virginia Regional Park Authority (NVRPA) has sought to fulfill its purpose: to carry out long-range open space conservation planning for Northern Virginia. Through the years, NVRPA has acquired more than 10,000 acres of parkland, operating 19 Regional Parks within the six jurisdictions it serves, including Fairfax County. A major goal influencing land acquisition and mandated by the Authority’s Policy Plan is to “protect regionally significant resources,” with an objective “to acquire and/or otherwise protect strategic lands adjacent to the region’s water resources; regional shorelines and/or any lands deemed important to the region’s watershed . . .”

From 1960 through 1974, NVRPA gradually acquired its 5,000-acre Bull Run and Occoquan Reservoir properties and the vast majority of the Bull Run shoreline acreage in Fairfax County. Approximately 790 acres were acquired on the shoreline of Mason Neck in 1978, contributing to the 2,277 acres currently under management by the U.S. Fish and Wildlife Service, as part of the Mason Neck National Wildlife Refuge. More than 1,500 tidal shoreline acres adjacent to Belmont Bay and Pohick Bay on the Potomac River were protected between 1972 and 1983 by NVRPA for public parkland use. Above the Great Falls of the Potomac River, over 1,850 acres of nontidal riparian lands, almost 700 of which lie within the boundaries of Fairfax County, have been protected by NVRPA through easements and acquisition.

Existing policies, goals, and objectives of the NVRPA Policy Plan remain consistent, guiding land planning and acquisition decisions by the Authority’s Board and contributing to the continued health and well-being of the natural resources and citizens of Northern Virginia. ■